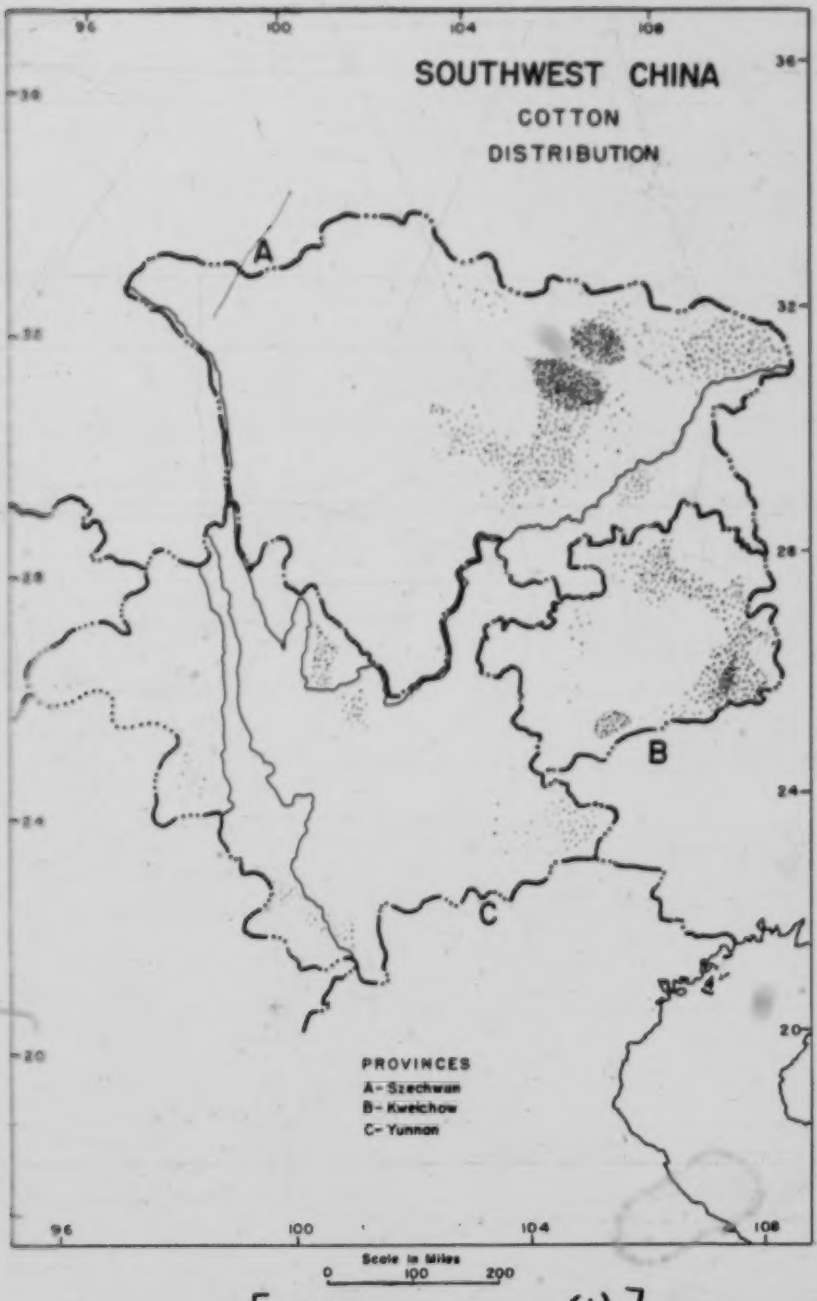
1:Stanford U. S-4, 5 1956 AF16 SW China AF16



[facing p. 745 (d)]

1:Stanford U. S-4, 5 1956 AF16 SW China
AF16

243
433 Using the statistics in Tables 4 and 5 as a basis for calculation, the total supply of grain -- in terms of rice-equivalents -- available for human consumption in 1954 in Southwest China was 22.5 million tons (20.46 million metric tons). If we use as the basis for estimate the Wu formula[19] of 217 metric tons of milled "rice-equivalent" grain for every 1,000 "adult males" per year, the total amount required to feed 80.52 million "adult males" in Southwest China was 17.47 million metric tons, leaving a surplus of almost 3 million metric tons (3.3 million tons) of "rice-equivalent" grain for export to other regions.

C. Cotton Production

248
433 During a six-year period ending in 1955, cotton production in the Southwest China region showed a considerable growth, although some ups and downs were noted during the period. Data on cotton production in the region are given in Table 6.

19. Yuan-li Wu, An Economic Survey of Communist China, New York, Bookman Associates, 1956, p. 165.

1:Stanford U. S-4, 5 1956 AF16 SW China AF16

Table 6. Cotton Production in Southwest China*

(Unit = 1,000. S = shih-piculs. B = Bales)

Province	1949	1952	1953	1954	1955
Szechwan	192 S (44 B)#	557 S (127 B)	508 S (116 B)	518 S (118 B)	622 S (142 B)
Yunnan, Kweichow	48 S (11 B)	139 S (32 B)	127 S (29 B)	130 S (30 B)	155 S (36 B)
Total	240 S (55 B)	696 S (159 B)	635 S (145 B)	648 S (148 B)	777 S 178 B)

* Estimated and compiled from the following sources: Economic Bulletin, Hong Kong, Oct. 1, 1954, No. 387, p. 4; Hsin Chien-she [New Construction], Peking, Kuang-ming jih-pao she, July 16, 1950, p. 30; May 3, 1955, pp. 47-53; Li Hsien-nien's Budget Report of 1955, New China News Agency, Peking, July 8, 1955; People's Handbook 1955,

Stanford U. S-4, 5 1956 AF16 SW China
AF16
AF16

Tientsin, Ta-kung pao, 1955, p. 511. The production data for Sikang Province is not available.

Bale = 480 pounds.

1:Stanford U. S-4, 5 1956 AF16 SW China
[redacted]
AF16

248
433 It will be noted that the production of cotton in Southwest China has increased since 1949. Using 1949 as the base year (100), production was 289 in 1952, 263 in 1953, 269 in 1954, and 323 in 1955. The fall in cotton production in 1953 was probably caused by the government ruling which lowered the price ratio of cotton and grain in that year. Production increased in 1954 but was still below the 1952 level, although the price ratio of the two commodities had been adjusted to encourage production. The Communist regime set a production target for 1955 approximately 20 per cent above the output for 1954, and in view of the more favorable climatic conditions prevailing during 1955 it is possible that the goal was attained.

The greatest amount of acreage planted in cotton was reached in 1952. When the price of cotton was lowered in 1953, less land was planted in cotton in subsequent years. Estimated cotton acreage in Szechwan Province and in the provinces of Yunnan and Kweichow (combined) are shown in Table 7.

1:Stanford U. S-4, 5 1956 AF16 SW China
AF16

• 248
433

Table 7. Cotton Acreage in Southwest China*

(Unit = 1,000. S = shih-mou. A = acres)

Province	1949	1952	1953	1954	1955
Szechwan	326 S (42.3 A)	911 S (151.8 A)	592 S (98.7 A)	604 S (100.7 A)	725 S (120.8 A)
Yunnan Kweichow	60 S (10.0 A)	168 S (28.0 A)	109 S (18.2 A)	111 S (18.5 A)	133 S (22.2 A)
Total	386 S (64.3 A)	1,079 S (179.8 A)	701 S (116.9 A)	715 S (119.2 A)	858 S (143.0 A)

* Estimated and compiled from the following sources: New Construction, Peking, July 11, 1950, p. 30; May 3, 1955, pp. 47-53; People's Daily, July 24, 1955; Economic Bulletin, Hong Kong, Sept. 13, 1954, p. 4; Oct. 1, 1954. Figures on the cotton acreage of Sikang Province are not available.

AF16

1:Stanford U. S-4, 5 1956 AF16 SW China
AF16

• 248 435 The price of cotton in ratio to the price of various grains is shown in Table 8.

Table 8. The Ratio of Cotton Prices Relative to Grains*
(In weight-units of grain to one unit of cotton lint 7/8" grade)

Region	1950	1951	1952	1953	1954	1955
Wheat	7.0	8.0	7.5-8.5	6.25-7.5	6.75-8.0	6.75-8.0
Millet	8.0	8.5	8.0-9.5	6.75-8.0	7.5-8.25	7.5-8.25
Rice	6.5	8.5	8.0-9.0	6.75-8.0	7.25-8.25	7.25-8.25

* Newspaper Reading Handbook, Hankow, 1950, p. 574; Ching-chi Chou-pao [Economic Weekly], Shanghai, May 28, 1953, p. 21; New China News Agency, March 3, 1954.

1;Stanford U. S-4, 5 1956 AF16 SW China
~~AF15~~ AF16

• 248 433 Most sections of the Southwest provinces are rice-producing regions. As will be noted in Tables 7 and 8, in 1953 and in 1954 parity prices were lower than in 1952; the total acreage under cultivation in these years dropped correspondingly. Thus changes in parity price are reflected by changes in the amount of acreage devoted to cotton in any given year.

To publicize a "bumper harvest" campaign, the Communist regime bestowed the title of "model producer" on any farmer who was able to report an increased yield of cotton per unit of land. In most cases, the yield had been increased by the application of modern farming techniques -- careful irrigation, the use of chemical fertilizers, improved farm implements, the planting of two or three crops a year, careful selection of seeds, and more efficient methods of cultivation. Of course, isolated cases of increased yields would not appreciably alter the average yield. What increases there have been in Southwest China since 1949 are indicated in Table 9.

1:Stanford U. S-4, 5 1956 AF16 SW China
AF16

248
433

Table 9. Average Cotton Yield in Southwest China*
(Unit: C = catties per shih-mou. P = Pounds per acre)

Province	1949	1952	1953	1954	1955
Szechwan	22.1 C (145.7 P)	30.8 C (203.3 P)	36.0 C (237.6 P)	37.8 C (249.5 P)	37.8 C (249.5 P)
Yunnan Kweichow	23.0 C (152.0 P)	30.8 C (203.3 P)	36.0 C (237.8 P)	37.9 C (249.9 P)	37.9 C (249.9 P)

* Estimated from the following sources: Hua-Shu, "Chung-kuo Ti Mien-hua Sheng-ch'an Wen-t'i" ["The Chinese Cotton Production Problem"], Hsin Chien-she [New Construction], Peking, Kuang-ming Jih-pao she, May 3, 1955, pp. 47-53; People's Daily, Peking, Jan. 27, 1950; Survey of China Mainland Press, Aug. 17, 1954, p. 29. The cotton yield per unit of land in Sikang Province is not available.

1:Stanford U. S-4, 5 1956 AF16 SW China
AF16

248 433 If we use 1949 as the base year (100), the average yield per unit of land was 134 in 1952, 156 in 1953, and 164 in 1954 and 1955.

D. Other Agricultural Products

244 433 Southwest China's production of edible oil (excluding soybean oil) surpasses the majority of regions in China, and the output of oil from rapeseeds ranks first on the Mainland. It was estimated that the total production of rapeseed oil in Szechwan Province alone amounted to 108,000 metric tons (118,800 tons) in 1955, an increase of 28 per cent over the amount produced in the preceding year.[20]

249 245 433 In addition to the production of rapeseed, Szechwan Province is also the chief producer of sugar cane and oranges. Tremendous quantities of sugar cane are grown on the plains of Chengtu; the output of sugar cane in 1955 was 1,180,000 tons more than the output in 1949, according to one report.[21] The 245 433 oranges and tangerines grown in Szechwan fill all local needs and are exported to other parts of China as well as to the Soviet Union

20. China Daily News, New York, Aug. 31, 1955.

21. Wen-hui Pao [Wen-hui Daily], Hong Kong, July 25, 1955.

5: Davies G-5 (1894-1900) 1909 AF16 Southwest China AF16

438 294 The tea is made up into disc-shaped cakes some eight inches in diameter and one inch thick, weighing about 12 ozs. These cakes, which are called *yüan*, are then put together in packets of seven, placed one on top of the other, and done up with strips of the outer bark of bamboo. This packet is called a *t'ung*, and it is in this form that it is usually sold.

According to my informants, seven-tenths of the tea goes to Yün-nan Fu and is from there distributed over eastern Yün-nan, Ssŭ-ch'uan, and other provinces. A good deal of the remainder is sent to Ta-li and other places in western Yün-nan, and to Tibet.

438 248 As to the cotton I did not get any details, but the trade is certainly a large one. The principal cotton growing districts are in the Chinese Shan States of Keng Hung and Möng Lem, and the British Shan State of Keng Tung. The greater part of Yün-nan is too cold to admit of this crop being cultivated, and as the whole population is clothed in cotton material, the trade in this commodity is one of the 438 largest and most necessary in the province. Much of it comes from Ssŭ-ch'uan, whence it is imported both in the raw form, in yarn, and in cloth. Much Manchester and Indian yarn and some cloth also comes into the province from the Yangtze, from Bhamo, and from Mêng-tzŭ, the treaty port near the Tong-king frontier. But there is still a considerable trade in raw cotton from Burma *viâ* Bhamo, and from the Shan States *viâ* Ssŭ-mao. How long this import of the raw material will hold its own is a matter of doubt, as the superior convenience of the foreign yarn is making it yearly more popular, but there must always be a certain demand for raw cotton to be used in the padded coats so universally worn in cold weather.

000 I do not think that a railway or even a trade route has ever been proposed between Kun-long and Ssŭ-mao, but having been over this country by two different roads, I may say that I think a railway would be impracticable and useless, and I do not expect that there will ever be even a trade route. The country lying between these two places is very wild and mountainous, contains nothing that can really be called a town, and is sparsely inhabited, principally by hill-men who, whether Chinese or of other tribes, have

5: Davies G-5 (1894-1900) 1909 AF16 Southwest China AF16

We had two more days of hilly walking, with occasional glimpses of the Wan-tien plain below us to the east, and then turning in a westerly direction we went down 3000 feet to the little plain which the Chinese call Mêng-po-lo and the Shans Möng Maw. Here I pitched my tent in the courtyard of the Shan monastery which stands on the bank of the Yung-ch'ang river among magnificent trees.

This place lies at an elevation of 2,300 feet, and is not far above the river's junction with the Salween. The inhabitants are all Shans, and the plain very small and poor. It is only remarkable as being one of the few places in Yün-nan low enough to grow cotton. The crop is dependent on a good rainy season, and the amount produced is quite insignificant.

On the 27th December we forded the Yung-ch'ang river and had the usual stiff climb out of the valley. We travelled for three days over a very hilly country to Mêng-p'êng[1], a little plain containing three or four Chinese and one La village. There was also a recently constructed fort here with a small garrison of Chinese soldiers.

The country we had passed through between Mêng-po-lo and Mêng-p'êng is chiefly inhabited by Chinese and Lo-los, but we met on the road one day some people whose women I recognised by their white pleated kilts as belonging to the Miao tribe whom I had previously seen in the Southern Shan States. They told us there were only a few villages of their race in this neighbourhood, and that they had emigrated from Kuei-chou province thirty or forty years ago.

This tribe I have come across in many places scattered about Western China and the Shan States, though nowhere in very large communities. I have seen them as far north as the Tibetan State of Mi-li and as far south as Keng Tung, one of the Southern Shan States. Westward I have not heard of them beyond the neighbourhood of Taw-nio. All these people, I believe, originally come from the southern part of Kuei-chou province, where they still inhabit a large tract of country, ruled by semi-independent chiefs of their own race. Miao or Miao-tzŭ is the name the Chinese have

[1] Möng Hpawng in Shan.

7: Hu K-5 (1934-) 1946 AF16 Southwest China AF16

a very important source of fertilizer. It is the most important source of vegetable oil supply of the Basin. Recently, research projects have been launched by the Central Chemical Research Bureau of China to study the possibility of using rape-seed oil for manufacturing synthetic petroleum and other motor oils for war use. 249

g) Barley and other winter crops.--Other important winter crops in the Basin include barley (Hordeum vulgare), buckwheat (Polygonum fagopyrum), and a great number of species of peas (Pisum Sativum). Barley normally occupies about 12,000,000 mow, or 11 per cent of the total crop area. Second in all China, the Basin's annual total output of barley normally amounts to 31,000,000 piculs (Fig. 35). Barley, like buckwheat, is an important dry winter crop on hilly lands in the northern part of the Basin. These crops generally do not require heavy soil, and call for little fertilization. The total acreage in various kinds of peas and beans is usually about 10,000,000 mow, or about 9 per cent of the total crop area. They grow both on hilly and plain areas throughout the Basin. But in plain areas they are used mainly for inter-culture purposes, with wheat and other crops. 243

2. Special Agricultural Products

a) Cotton.--China's "cotton-belt" lies north of the Yangtse. South of the Yangtse, comparatively little cotton is produced. Geographically, Szechuan Basin lies in a southernmost position among all the provinces north of the Yangtse and is therefore in an intermediate position so far as cotton production is concerned (Fig. 1). The most important cotton producing districts in the Basin lie between latitude 29 degrees and 32 degrees N. Particularly the heaviest concentration is at 31 degrees N., around the districts of the upper Pou River Valley, such as Suining, Shei-hung, Santai, Chung-chiang, and Yen-ting (Fig. 36). These five districts accounted for nearly 60 per cent of the total crop in 1936 (Table 4). 248

In these areas the total annual rainfall generally runs below 1,000 millimeters (Fig. 24). Most of the rain falls during the summer, but there is also considerable rainfall in the early autumn (Table 5). This distribution of rainfall, as we shall see later, is not very satisfactory for cotton production. The soil conditions, however, are quite favorable for cotton production.

7: Hu K-5 (1934-) 1946 AF16 Southwest China AF16

248 The soils are mainly alluvial, on flattish valley-bottom lands. In these districts the cotton acreage sometimes occupies as much as 70 per cent of the total crop area. Most of the cotton produced here consists of a number of American varieties (Delfos, Trice, etc.).

The second principal cotton-producing area is found in the hills of the lower To River Valley, in the districts of Chien-yang, Yung-hsien, and Wei-yuan (Fig. 36), where the native varieties are dominant.

The third cotton-producing area is along the hilly slope lands of the lower Min River, in the districts of Jen-shou and Ching-yen (Fig. 36), where native cotton is the principal variety.

The fourth cotton-producing area is in the lower Chialing River Valley, particularly in Nan-pu, Pa-chung, and I-lung.

The total acreage in cotton in the Basin is generally estimated to be about 2,200,000 mow. The total annual output is about 600,000 piculs,[1] (Table 4), which falls far short of the need of the Basin. (It is estimated that the Basin requires 1,500,000 piculs of cotton annually, averaging 3 ching of cotton per person.) This shortage accounts for the ever-increasing import of cotton yarns and cotton piece goods by the Basin every year. The cotton shortage now constitutes one of the most serious problems of the Basin's agricultural land-use.

There are four reasons for this failure to produce enough cotton for the needs of the Basin. First of all, climatically, the high rainfall in many parts of the Basin, during the autumn months of September and October, generally hinders the maturity of the cotton bolls and induces serious insect pests. According to the record of the meteorological station at Sui-ning,[2] the mean annual temperature is 17.9 degrees C. (64° F.), the absolute minimum during the year is 2.2 degrees C. (39.6° F.), and the maximum absolute during the year is 37.7 degrees C. (98° F.). The average annual rainfall is 929 millimeters. January has a minimum rainfall of 4.7 millimeters, while August has the high maximum rainfall of 227 millimeters (Table 5).

---

[1] The 1936 production falls far short of this figure due to the serious drought of that year.

[2] Annual Meteorological Report of Sui-ning Station (1937), pp. 38-39.

7: Hu K-5 (1934-) 1946 AF16 Southwest China AF16

248●

Generally speaking, the total annual rainfall here is sufficient for cotton production. But the fact that so much of it (about 22 per cent of the total annual rainfall) falls during the months of September and October (Table 5), with an average of only five clear days during this period (Table 5), is particularly detrimental to cotton production, especially to the maturing of the cotton bolls. It is reported that as much as 50 per cent of the cotton bolls are often destroyed by this heavy rain. Thus the problem of extending cotton production in the Basin lies not so much in the limitations of the soil as in the limitations of the climate, particularly of the rainfall regime.

One of the methods to be adopted to overcome this climatic limitation upon cotton production is to select early-maturing species of cotton. Since the temperature during April in most parts of the Basin is already high enough for cotton and if the cotton plant can be planted at this time (instead of in June, as is the usual practice here), the crop may be harvested early, before the heavy autumn rains set in. On the whole, so far as the climatic conditions are concerned, the northern part of the Basin is more suitable for cotton production than the southern part.

The second reason for the failure to produce enough cotton in the Szechuan Basin is that the sandstone soils, which prevail in most parts of the Basin, are considered unsuitable for the cultivation of cotton. Cotton-production is consequently limited chiefly to small alluvial areas or to the hilly sections, where the soils are generally too thin and infertile for cotton production.[1]

Third, the cotton is planted relatively late in the year. Cotton is a summer crop here, and is generally planted after the harvest of the winter crops, which may be either wheat or barley. This practice seems to be a little late for the cotton plant, and is particularly unsatisfactory in the case of the imported American variety. The late planting thus hampers growth and production.

Fourth, the heterogeneity and the inferior quality of the native strains of cotton have hampered greatly its successful production. And finally, the traditional practice of inter-culture

---

[1]Hou, "Notes on the Cotton Soils on Sui-ning Area, Szechuan," Soil Quarterly, I, No. 3 (January, 1941), 6.

7: Hu K-5 (1934-) 1946 AF16 Southwest China AF16

248 of cotton with other crops, such as corn, soy beans, potatoes, pepper, and others, has been found especially undesirable. The inter-culture with corn is particularly disastrous to the cotton, because the corn has heavy foliage and competes keenly with the cotton plant for sunlight and moisture. All these factors, whether individually or in combination, have contributed to the failure of cotton culture in the Basin.

Recently, on account of the pressing need for increasing clothing materials, the Bureau of Central Agricultural Research has undertaken rigorous projects to improve the unhappy situation. By the beginning of 1940 the Bureau had extended the cotton promotion program over fifty-seven districts of the Basin, with particular emphasis on the cultivation of imported varieties, such as Delfos, Trice, and some improved local strains. Some of these varieties possess the special virtue of maturing early, before the autumn rains set in and injure the bolls. Cotton control stations have been established in a number of key points (such as Sui-ning, Shei-hung, and Santai) in order to avoid hybridization and to preserve the purity of the improved strains.[1] Moreover, special measures have been taken to discourage the old practice of inter-culture in cotton planting.

249 b) Tobacco.--Tobacco (Nicotiana tobocum), or "Yen," as the Chinese call it, like corn and potatoes, is another plant which had its origin in the New World. It was transplanted to China around 1540 and was first cultivated in the Basin about 1750.[2] The Basin normally produces about one-fourth (an average of 1,500,000 piculs) of all the tobacco produced in China.[3] It is reported that tobacco is produced in fifty-seven districts of the Basin. The principal producing areas are in Chengtu Plain, and there are special concentrations in the districts of Shih-fang, Pi-hsien, Sin-tu, and Ching-tang (Fig. 37). Other important producing centers include Mei Shan in the south, and Mien-chu in the north at the edge of the Chengtu Plain. The Chengtu Plain area generally accounts for about 60 per cent of the total production of tobacco in the Basin (Table 6).

---

[1] Report of the Bureau of Central Agricultural Research (1939), p. 86.

[2] Gazetteers of Pi-hsien, III, 4.

[3] The production figure for 1936 (Table 6) is lower than that for other years due to a serious drought that year.

7: Hu K-5 (1934-) 1946 AF16 Southwest China AF16

249 areas are concentrated mainly in five districts of the To River Valley, namely, Nei-chiang, Tze-chung, Tze-yang, Chien-yang, and Fu-shun (Fig. 37). In 1936 these five districts alone accounted for 73 per cent of the total crop (Table 7).

There are two principal kinds of sugar cane produced here, namely, the red cane and the white cane. The red cane is used for chewing purposes, whereas the white is used mainly for sugar-extraction. Unfortunately, because of the poor quality of the cane and the inefficient methods of refining, the local sugar production is not only small in quantity (pure sugar production only about 1,000,000 catties), but also poor in quality. Consequently, in the face of keen competition from high-quality imported sugar, the sugar produced in the Basin (with the exception of Chieh-tang sugar, a specially treated medicinal sugar which normally finds its principal markets in the I-chang and Hankow areas) has been driven out of the former inter-provincial markets, such as Yunnan and Kweichow. Moreover, the local sugar cannot even maintain its foothold in the local market. This fact is evidenced by the increasing import of foreign sugar into the Basin.

Sugar cane and cotton constitute two of the most acute problems in agricultural land-use in the Basin. Recently, various programs have been launched by the Bureau of Central Agricultural Research in order to improve this situation. Sugar cane improvement stations have been established in the Nei-Chiang, Tze-yang, and Chien-yang districts. A large number of foreign species have been transplanted from Java and Cuba. It was recently discovered that the species P.O.J. 2878 and P.O.J. 2725, selected from Java breeds, adapt specially well to local environmental conditions in the Basin. They have a 5 per cent higher sugar content than most of the native species. Rigorous attempts are being made to extend these two species among the Basin farmers.[1]

248 d) Hemp.--The two principal species of hemp produced in the Szechuan Basin, namely, the "chu-ma" (Corchorus capsularies) (or ramie, China grass, as it is popularly known in the west), and "hou-ma" (Cannabis sativa), or fire-hemp, as it is called locally. These two species, being produced in different areas with widely different physical requirements, are used for entirely different purposes. The "chu-ma" is further divided into two kinds--the

[1]Chen, op. cit., p. 22.

7: Hu K-5 (1934-) 1946 AF16 Southwest China AF16

248

green and the white. The producing areas of green chu-ma are confined mainly to the districts of Ta-hsien, Chu-hsien, Ta-chu, Peng-an, and Pa-chung, in the Chu River Valley in the eastern part of the Basin, and to the districts of Peng-shui and Pei-ling in the southern part of the Basin (Fig. 36). The white chu-ma is produced mainly in the Nei-chiang, Lung-chang, and Yung-chang districts, where it is noted for its fine quality. The total production of the two kinds of chu-ma amounts to 40,000 piculs annually. The "hou-ma" is produced principally in the districts of Wen-chiang, Pi-hsien, Shuan-liu, and Tsung-ching, west of the Chengtu Plain (Fig. 36). The total production is a little over 100,000 piculs annually.

The Chu-ma hemp survives especially well on the sandy loams of well-drained slopes, whereas the "hou-ma" hemp is produced in plain areas. Both species require a warm, humid climate and protection from wind during the growing season. They also demand a clear, dry season during the time when the fiber matures. In the heart of the "hou-ma" hemp-growing area around Chengtu Plain, in the districts of Pi-hsien, Wen-chiang, and Shuan-liu, for example, the average January and February temperatures lie between 5 and 10 degrees C. (Table 9), and the lowest minimum temperature during these two months seldom falls below 2 degrees C. (36° F.). From March through June, i.e., during the period of growth and maturity, the average temperature of these districts gradually increases, ranging between 12 and 26 degrees C. (54° and 79° F.). The relative humidity between January and June is always above the 70-per-cent mark[1] (Table 9). These climatic conditions are especially favorable for the hemp plant.

However, the rainfall in April and May, usually between 10 and 20 centimeters, seems to be a little low for the growing season.[2] In Wen Chiang, for example, the rainfall for these two months is only a little over 10 centimeters, and the rainfall at Pi-hsien for the same months is only slightly over 17 centimeters (Table 9). Fortunately, this scarcity of rainfall is remedied by

---

[1] Bureau of Reconstruction, Szechuan Provincial Government, Report of the Meteorological Bureau (1939), p. 19. (Unfortunately, many stations here do not have complete records for all months, thus rendering the interpretation more difficult.)

[2] Ibid., p. 21.

7: Hu K-5 (1934-) 1946 AF16 Southwest China AF16

248 the water-supply of the nearby Tu-chiang-yen irrigation works. Hou-ma hemp is a spring crop. The seeds are sown in February, and the plants harvested in the middle of June, just as soon as they commence to flower. The stems are allowed to grow close together, and to reach eight feet or more in height. The culms are reaped, stripped of their leaves.

One of the most interesting practices in connection with Hou-ma hemp culture in these areas is the extremely intensive cultivation of the soil-beds. There is an old saying among the Hou-ma farmers, "Till nine times for hemp." This cultivation is necessary mainly because the roots of the young hemp plant, which are especially tender and weak, may be hampered in their proper growth if the soil bed is heavy. The use of "lu-tiao" (Astragalus sinensis) as green manure is also quite common here.

With the exception only of the Wen-chiang district, rotation with rape or wheat is commonly practiced by the hou-ma farmers of Chengtu Plain.

The uses and markets of hou-ma and chu-ma are just as different as their methods of culture and their physical requirements. In the case of chu-ma hemp, the white variety is used in the manufacture of the famous "hsia-pu," or summer cloth, which is well known over all parts of China, as well as in Korea and Japan. It has a particularly wide market in Hopeh, Shensi, Shangtung Honan, and Kwangtung provinces. It has also been shipped in considerable quantity to Korea and Japan. The green chu-ma hemp is all exported in the raw form to Japan and to France, for the manufacture of artificial silk. The hou-ma is used principally for rope-making, cordages, grain sacks, salt-bags, and military sacks. These products have their chief markets within the Basin, particularly in the salt-producing areas of Tze-liu-ching.

3. Special Agricultural and Horticultural Products

245 a) Citrus fruits.--Among all the sub-tropical products in the Basin, citrus fruits, especially oranges, have the widest range in geographical distribution. From Ching-Tang at the north to as far as Chiang-tsin at the south, nearly all the districts south of latitude 31 degrees N. produce citrus fruits. The most important centers of citrus fruit production are, however, confined to a few districts, namely, the Ho-chuan of the middle Chialing River, Chiang-tsin and Pa-hsien along the Yangtse,

7; Hu K-5 (1934-) 1946 AF16 Southwest China AF16

TABLE 4

PRODUCTION OF COTTON IN SZECHUAN (1936)

433
248

Name of District	Cultivated Area (In Mow)	Total Production (In Piculs)	Percentage of Total Production
Sui-Ning.....	387,335	60,374	20.1
Shei-Hung.....	322,380	59,458	19.8
Jen-Shou.....	275,416	26,025	8.6
San-Tai.....	146,318	23,670	7.8
I-Lung.....	120,309	17,265	5.7
Nan-Pu.....	114,226	15,318	5.1
Chien-Yang.....	118,950	15,249	5.0
Pa-Chung.....	76,747	15,082	5.0
Chung-Chiang....	79,402	12,480	4.1
Yen-Ting.....	123,710	10,272	3.4
Yung-Hsien.....	49,448	7,063	2.3
Lo-Chi.....	36,676	6,693	2.2
Ching-Tan.....	59,876	5,389	1.7
Peng-Hsi.....	25,628	3,692	1.2
Fu-Shun.....	24,683	3,393	1.1
Nan-Chung.....	7,500	2,653	.8
Tung-Nan.....	19,960	1,996	.6
Wei-Yuan.....	17,860	1,917	.6
Feng-Chieh.....	6,800	1,623	.5
Lu-Hsien.....	19,958	1,605	.5
Yun-Yang.....	1,025	1,544	.5
Peng-An.....	14,596	1,167	.3
Ho-Chiang.....	3,450	1,158	.3
Tzu-Yueng.....	13,725	945	.3
Chiang-An.....	11,492	864	.2
Nan-Ch'ung.....	6,424	628	.2
Tzu-Chung.....	7,179	527	.1
An-Yo.....	1,677	352	.1
Si-Chung.....	6,008	324	.1
I-Ping.....	5,000	300	.09
Lo-Chiang.....	3,725	267	.08
Nou-Hsi.....	993	187	.06
Chang-Ning.....	3,000	168	.05
Ching-Hu.....	440	147	.04
Nan-Hsi.....	1,889	113	.03
Ching-Yen.....	1,474	98	.03
Lei-Chiang.....	1,416	97	.03
Chien-Wei.....	1,520	97	.03
Lung-Chang.....	792	44	.01
Chia-Chiang.....	408	35	.01
Total.....	2,119,415	300,279	100.00

7: Hu K-5 (1934-) 1946 AF16 Southwest China AF16

TABLE 5

RAINFALL CONDITIONS OF SUINING (COTTON PRODUCING CENTER) SZECHUAN
(1936-1937 Average)

Month	Amount of Rain (In Mm.)	Average Number of Days			
		Clear	Partly Cloudy	Cloudy	Rainy
January.....	4.7	3	13	12	5
February.....	14.5	5	3	15	5
March.....	21.8	4	16	4	7
April.....	44.4	7	8	7	13
May.....	86.5	1	10	5	15
June.....	108.5	2	5	5	18
July.....	201.5	3	7	7	14
August.....	227.0	3	6	4	18
September.....	146.0	1	2	4	23
October.....	52.6	4	2	11	14
November.....	11.3	4	9	12	5
December.....	10.9	3	4	16	8
Total.....	929.7	40	85	102	145

132
248

?: Hu K-5 (1934-) 1946 AF16 Southwest China AF16

TABLE 9

CLIMATIC CONDITIONS OF THE HEMP-PRODUCING DISTRICTS OF SZECHUAN
(1936-1938 Average)

248
132

Name of District	Climatic Conditions	Jan.	Feb.	March	April	May
Wen-Chiang.....	Temperature (C.)	5.8	9.1	12.6	18.7	22.4
	Humidity (o/o)	77.4	75.8	72.4	72.6	71.7
	Rainfall (mm.)	8.2	23.0	9.3	4.8	102.0
Tsung-Ching.....	Temperature (C.)	....	....	....	....	24.6
	Humidity (o/o)	....	....	....	....	79.8
	Rainfall (mm.)	....	....	....	....	40.0
Kuan-Hsien.....	Temperature (C.)	....	....	....	19.4	22.7
	Humidity (o/o)	....	....	....	65.3	63.1
	Rainfall (mm.)	....	....	....	49.6	100.8
Pi-Hsien.....	Temperature (C.)	6.1	7.8	14.0	18.8	22.9
	Humidity (o/o)	75.5	75.6	72.9	70.9	78.5
	Rainfall (mm.)	.2	10.5	9.8	31.6	145.3
Shuan-Liu.....	Temperature (C.)	6.6	8.3	13.6	18.7	23.0
	Humidity (o/o)	89.8	84.6	75.3	76.4	79.1
	Rainfall (mm.)	.5	10.7	7.1	31.1	70.0
Sin-Tsing.....	Temperature (C.)	....	....	....	....	.....
	Humidity (o/o)	....	....	....	....	.....
	Rainfall (mm.)	....	....	....	....	.....
Peng-Hsien.....	Temperature (C.)	5.9	....	....	....	24.6
	Humidity (o/o)	89.5	....	....	....	66.5
	Rainfall (mm.)	.8	....	....	....	137.2
Tsung-Ning.....	Temperature (C.)	5.6	8.7	12.4	18.3	22.4
	Humidity (o/o)	82.8	84.7	82.1	79.5	79.8
	Rainfall (mm.)	5.4	6.6	20.2	11.3	160.5

TABLE 9—Continued

248
132

June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	Average
24.3	26.0	26.7	22.0	18.0	10.6	8.4	204.8	17.1
78.3	81.8	81.8	82.8	80.9	78.6	76.0	929.0	77.4
161.2	461.6	172.0	205.0	46.4	18.5	9.5	1221.6	....
25.6	27.0	27.5	22.9	19.3	11.6	9.1	.....	....
84.4	88.3	.....	.....	81.3	83.9	80.7	.....	....
54.0	440.0	.....	446.7	150.1	51.2	10.7	.....	....
24.6	25.4	26.9	20.7	19.4	12.2	7.8	.....	....
71.1	79.4	.....	85.9	.....	69.6	66.5	.....	....
188.2	878.7	456.5	244.6	187.7	57.3	32.3	.....	....
24.6	25.8	27.1	21.7	18.1	11.5	8.3	206.7	17.2
80.4	83.2	83.4	83.8	82.5	81.9	80.0	943.6	78.6
184.9	311.1	515.1	245.0	30.5	11.8	9.7	1455.5	....
24.8	25.8	27.2	22.3	18.4	11.4	8.7	208.8	17.4
86.6	.....	87.6	88.5	86.0	85.2	88.3	.....	....
51.2	447.8	197.2	163.7	45.2	10.6	7.8	1042.0	....
26.4	27.1	28.0	23.2	19.1	11.9	9.3	.....	....
74.2	80.5	79.8	83.1	77.5	75.5	79.7	.....	....
106.9	378.5	337.1	175.9	34.4	16.0	17.4	.....	....
23.5	28.6	27.5	22.2	17.8	10.9	9.0	.....	....
78.9	72.8	.....	84.5	84.6	79.8	82.0	.....	....
53.0	46.7	54.0	76.3	20.9	17.3	5.5	.....	....
23.8	25.6	27.5	22.6	18.5	10.5	8.6	.....	....
85.7	.....	87.8	.....	88.2	88.6	81.9	.....	....
89.7	168.3	69.5	82.8	70.6	13.8	23.2	.....	....